

WHAT IS CLAIMED IS:

1. An air conditioner comprising:

5 a plurality of compressors, for compressing a refrigerant, of which one or more are operated so that refrigerant compression capacity is variably changed according to the variation of a cooling/heating load;

10 inlet pipes allowing the refrigerant to be distributed and introduced into the compressors, and outlet pipes allowing the refrigerant from the compressors to be combined and exhausted;

a condenser for condensing the refrigerant compressed by the compressors by heat-exchanging the refrigerant with air;

15 an electronic expansion valve for expanding the refrigerant condensed by the condenser by passing the refrigerant through an expanded passage; and

20 a microcomputer for controlling the electronic expansion valve to be opened by a designated opening degree so that the pressure equilibrium in the compressors is rapidly achieved, in case that one or more compressors are stopped in accordance with the variation of the cooling/heating load and then re-operated.

25 2. The air conditioner as set forth in claim 1, further comprising:

a plurality of pressure sensors respectively installed at the inlet and outlet pipes connected to the compressors for measuring pressures at the inlet and outlet pipes connected to the re-operating compressors,

5            wherein the microcomputer controls the electronic expansion valve to be opened by the designated opening degree during a period when the pressures at the inlet and outlet pipes connected to the re-operating compressors sensed by the pressure sensors reach equilibrium.

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3. The air conditioner as set forth in claim 1, further comprising a timer, to which a pressure equilibrium time, taken to allow pressures at the inlet and the outlet pipes connected to the compressors to reach equilibrium, is inputted in advance, for measuring the pressure equilibrium time,

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wherein the microcomputer controls the electronic expansion valve to be opened by the designated opening degree during the pressure equilibrium time measured by the timer.

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4. The air conditioner as set forth in claim 3,

wherein the microcomputer sets the designated opening degree of the electronic expansion valve so that the pressure equilibrium time is minimized.

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5. The air conditioner as set forth in claim 1,

wherein the microcomputer controls the electronic expansion valve to be completely closed when the pressure equilibrium in the compressors is achieved.

5           6. An air conditioner comprising:

          a plurality of compressors, for compressing a refrigerant, of which one or more are operated so that refrigerant compression capacity is variably changed according to the variation of a cooling/heating load;

10           inlet pipes allowing the refrigerant to be distributed and introduced into the compressors, and outlet pipes allowing the refrigerant from the compressors to be combined and exhausted;

          a condenser for condensing the refrigerant compressed by  
15           the compressors by heat-exchanging the refrigerant with air;

          an electronic expansion valve for expanding the refrigerant condensed by the condenser by passing the refrigerant through an expanded passage;

20           a plurality of pressure sensors respectively installed at the inlet and outlet pipes connected to the compressors for measuring pressures at the inlet and outlet pipes connected to the re-operating compressors; and

          a microcomputer for controlling the electronic expansion valve to be opened by a designated opening degree, during a  
25           period when the pressures at the inlet and outlet pipes

connected to the re-operating compressors sensed by the pressure sensors reach equilibrium, in case that one or more compressors are stopped in accordance with the variation of the cooling/heating load and then re-operated.

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7. The air conditioner as set forth in claim 6,  
wherein the microcomputer controls the electronic expansion valve to be completely closed when the pressure equilibrium in the compressors is achieved.

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8. An air conditioner comprising:  
a plurality of compressors, for compressing a refrigerant, of which one or more are operated so that refrigerant compression capacity is variably changed according to the variation of a cooling/heating load;

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inlet pipes allowing the refrigerant to be distributed and introduced into the compressors, and outlet pipes allowing the refrigerant from the compressors to be combined and exhausted;

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a condenser for condensing the refrigerant compressed by the compressors by heat-exchanging the refrigerant with air;

an electronic expansion valve for expanding the refrigerant condensed by the condenser by passing the refrigerant through an expanded passage;

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a timer, to which a pressure equilibrium time, taken to

allow pressures at the inlet and the outlet pipes of the re-operating compressors to reach equilibrium, is inputted in advance, for measuring the pressure equilibrium time, and

a microcomputer for controlling the electronic expansion valve to be opened by a designated opening degree, during the pressure equilibrium time measured by the timer, in case that one or more compressors are stopped in accordance with the variation of the cooling/heating load and then re-operated.

9. The air conditioner as set forth in claim 8, wherein the microcomputer sets the designated opening degree of the electronic expansion valve so that the pressure equilibrium time is minimized.

10. The air conditioner as set forth in claim 8, wherein the microcomputer controls the electronic expansion valve to be completely closed when the pressure equilibrium in the compressors is achieved.

11. A method for controlling an electronic expansion valve of an air conditioner, comprising the steps of:

(a) stopping one or more of a plurality of operating compressors in accordance with the decrease of a cooling/heating load; and

(b) controlling the electronic expansion valve to be

opened by a designated opening degree so that the pressure equilibrium in the stopped compressor(s) is rapidly achieved, in case that the cooling/heating load is increased after the stoppage of the operating compressors in the step (a).

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12. The method as set forth in claim 11,

wherein the step (b) includes the step of controlling the electronic expansion valve to be completely closed, after the pressure equilibrium in the stopped compressor(s) is achieved.

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13. The method as set forth in claim 11,

wherein the designated opening degree in step (b) is the minimum degree allowing pressures at inlet and outlet pipes connected to the stopped compressor(s) to reach equilibrium within a set time.

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14. The method as set forth in claim 13,

wherein the set time is the total sum of a first necessary time taken to allow the pressures at the inlet and the outlet pipes of the stopped compressor(s) to reach equilibrium and a second necessary time taken to allow the electronic expansion valve to be controlled to be closed.

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15. The method as set forth in claim 14,

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wherein the first necessary time is the same as a time

taken to allow the pressures at the inlet and outlet pipes of the stopped compressor(s) to reach equilibrium under the condition in which the electronic expansion valve is completely opened.

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16. A method for controlling an electronic expansion valve of an air conditioner, comprising the steps of:

(a) stopping one or more of a plurality of operating compressors in accordance with the decrease of a cooling/heating load;

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(b) controlling the electronic expansion valve to be opened by a designated opening degree so that the pressure equilibrium in the stopped compressor(s) is rapidly achieved in case that the cooling/heating load is increased after the stoppage of the operating compressors in the step (a); and

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(c) controlling the electronic expansion valve to be completely closed, after the pressure equilibrium in the stopped compressor(s) is achieved in the step (b).

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17. The method as set forth in claim 16,

wherein the designated opening degree of step (b) is the minimum degree allowing pressures at inlet and outlet pipes connected to the stopped compressor(s) to reach equilibrium within a set time.

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18. The method as set forth in claim 17,

wherein the set time is the same as a time taken to allow the pressures at the inlet and outlet pipes of the stopped compressor(s) to reach equilibrium under the condition in which the electronic expansion valve is completely opened.

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